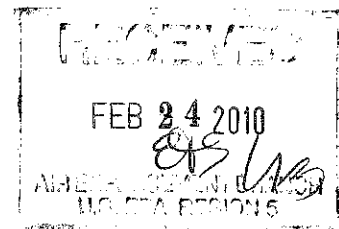




February 19, 2010

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
Box 7611 Ben Franklin Station
Washington, DC 20044-7611



Air and Radiation Division
EPA Region 5
77 W. Jackson Blvd (AE-17J)
Chicago, IL 60604
Attn: Compliance Tracker

Office of Region Counsel
EPA Region 5
77 W. Jackson Blvd (C-14J)
Chicago, IL 60604

RE: DOJ No. 90-5-2-1-09022
Vertellus Agriculture & Nutrition Specialties LLC
Indianapolis Indiana
Facility-Wide LDAR Document

To Whom It May Concern:

Vertellus Agriculture & Nutrition Specialties LLC (Vertellus) respectfully submits the enclosed Facility-Wide LDAR Document as required in Subsection B paragraph 14 of the Consent Decree between the United States of America and Vertellus, Civil Action No. 1:09-cv-1030 SEB-TAB.

If you have any questions please contact me at 317-248-6511.

Sincerely,

A handwritten signature in black ink, appearing to read "Tamra Kress".

Tamra Kress
EHS&S Manager

Cc: John Jones, Vertellus
Anne Frye, Vertellus
Constantinos Loukeris, EPA
Deboraha Carlson, EPA



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**Vertellus Agriculture & Nutrition
Specialties LLC
Indianapolis Indiana**

Facility-Wide LDAR Document

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1. Purpose

The Clean Air Act (CAA) and Resource Conservation and Recovery Act (RCRA) require Vertellus Agriculture & Nutrition Specialties LLC (Vertellus) to have a Leak Detection and Repair (LDAR) program to control fugitive emissions. Fugitive emissions occur from regulated equipment such as valves, pumps, compressors, pressure relief valves, flanges, connectors, agitators, OEL's, and other piping components. Federal regulations require Vertellus to routinely monitor for leaks and to fix any equipment found leaking.

The facility has an existing LDAR program as covered in the Part 70 Operating Permit # T097-7552-00315 issued by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The Enhanced LDAR Program (ELP) required by the Consent Decree (CD) with the U.S. Environmental Protection Agency (EPA), Civil Action No. 1:09-cv-1030 SEB-TAB as Lodged on August 21, 2009 and Effective December 1, 2009 (CD), is being integrated into the existing program. The CD requires Vertellus to develop a facility-wide document that describes: (i) its facility-wide LDAR program; (ii) a tracking program that ensures that new pieces of equipment added to the facility are integrated into the LDAR program and that pieces of equipment that are taken out of service are removed from the program; (iii) the roles and responsibilities of all employees and contractors assigned to the LDAR program; (iv) how the number of persons dedicated to the LDAR functions is sufficient to satisfy the requirements of the LDAR program; and (v) how the facility plans to implement this ELP.

2. Applicability of Regulations to Process Units

This section provides descriptions of the process units as defined at the Indianapolis plant that are included in the LDAR program. The ELP applies to all Covered Equipment in Plant 27 and Plant 41 only, with the exceptions of Paragraphs 14 and 47 of the Consent Decree, which apply to all equipment at the facility covered by LDAR requirements. The process units are as follows:

- Plant 27-known as the Pyridine Plant, this unit consists of the BOX plant, DAB plant, and the Base Stills. This unit produces pyridine and pyridine bases.
- Plant 29-known as Utilities, this unit includes the boiler operations and wastewater treatment system. Three of the boilers burn hazardous waste residue and solvents.
- Plant 40-known as the Vinylpyridine or VP Plant. One of the unit's raw materials is benzene. The unit also contains hazardous waste tanks.
- Plant 41-known as the Cyano Plant, this unit produces cyanopyridine which is a pharmaceutical precursor for vitamin B3.
- Plant 47-known as the Wheeler Plant or Spec Chem is a batch operation for specialty chemicals. The unit contains hazardous waste tanks.
- Plant 48-known as the Amino Pyridine or AP plant produces sodium methylate. The unit contains hazardous waste tanks.

2.1. Procedures for Identifying Equipment in LDAR Service

Equipment in process units have been identified as being in benzene, hazardous waste, or in HAP service. This information is obtained by reviewing P&IDs, PFDs, and process knowledge.

2.2. Applicability of LDAR regulation to each unit

The following table identifies the process unit and applicable regulatory citations.

Table 2-1 Unit LDAR Requirements

Process Unit	Applicable LDAR Requirements
Plant 27	40 CFR Part 63, Subpart H (HON); Consent Decree
Plant 29	40 CFR Part 264/265, Subpart BB (Hazardous Waste)
Plant 40	40 CFR Part 61, Subpart J (Benzene); 40 CFR Part 265, Subpart BB (Hazardous Waste)
Plant 41	40 CFR Part 63, Subpart GGG (Pharma); Consent Decree
Plant 47	40 CFR Part 265, Subpart BB (Hazardous Waste)
Plant 48	40 CFR Part 265, Subpart BB (Hazardous Waste)

2.3. Leak Definitions

The following Tables 2-2 and 2-3 detail the leak definitions by equipment type for each unit as described above and as required for Covered Equipment as defined by the CD. The tables provide leak definitions as determined using Method 21 found in 40 CFR Part 60 Appendix A (Method 21) and other means such as visual or olfactory sensing. The Method 21 leak definitions found under the column heading *Consent Decree Plant 27/41* will be enforced starting in May 2010 (no later than nine months after the Date of Lodging) and extend until termination of the CD.

Table 2-2 METHOD 21 LEAK DEFINITIONS

Equipment	Consent Decree <i>Plant 27/41</i>	HON [63 Subpart H] <i>Plant 27</i>	Pharma [Subpart GGG] <i>Plant 41</i>	Benzene [61 Sub. J] <i>Plant 40</i>	RCRA [264 Subpart BB] <i>Plants 29</i>	RCRA [265 Subpart BB] <i>Plants 29, 40, 47, 48</i>
Pumps -LL	500 ppm [CD par.19]	1,000 ppm [63.163]	2,000 ppm [63.1255(c)(2)]	10,000 ppm [61.242-2]	10,000 ppm [264.1052]	10,000 ppm [265.1052]
Agitators - GV/LL	500 ppm [CD par.19]	10,000 ppm [63.173]	10,000 ppm [63.1255(c)(2)]	--	--	
Valves - GV/LL	250 ppm [CD par.19]	500ppm [63.168]	500 ppm [63.1255(e)(3)]	10,000 ppm [61.242-7]	10,000 ppm [264.1057]	10,000 ppm [265.1057]
OELCD	250 ppm [CD par.19]	--	--	--	--	--
Connectors - GV/LL	250 ppm [CD par.19]	500 ppm [63.174(a)]	500ppm [63.1255(b)(4)(iii)]	10,000 ppm [61.242-8]	10,000 ppm [264.1058]	10,000 ppm [265.1058]
Pressure Relief Devices - GV		500 ppm [63.165(a)]	500 ppm [63.1255(b)(3)]			
Instrument Systems and Pressure Relief Devices in Liquid Service		500 ppm [63.169(b)]	500 ppm [63.1255(b)(3)]			
Closed Vent Systems		500 ppm [63.172(h)]	500 ppm [63.1255(b)(3)]		500 ppm [264.1033(k)]	500 ppm [265.1033(j)]
Pressure Relief Devices in Liquid Service					10,000 ppm [264.1058]	10,000 ppm [265.1058]

Table 2-3 OTHER LEAK DEFINITIONS

Equipment	Consent Decree <i>Plant 27/41</i>	HON [63 Subpart H] <i>Plant 27</i>	Pharma [Subpart GGG] <i>Plant 41</i>	Benzene [61 Sub. J] <i>Plant 40</i>	RCRA [264 Subpart BB] <i>Plants 29</i>	RCRA [265 Subpart BB] <i>Plants 29, 40, 47, 48</i>
Pumps	Audio, Visual, or Olfactory Sensing [CD par.20]	Liquids dripping from the seal [63.163(b)(3)]	Liquids dripping from the seal [63.1255(c)(2)(iii)]	Liquids dripping from the seal [61.242- 2(b)(2)]	Liquids dripping from the seal [264.1052(b)(2)]	Liquids dripping from the seal [63.1255(c)(2)(i ii)]
Agitators - GV/LL	Audio, Visual, or Olfactory Sensing [CD par.20]	Liquids dripping from the seal [63.173(b)(2)]	Liquids dripping from the seal [63.1255(c)(2)(iii)]		Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing
Valves - GV/LL	Audio, Visual, or Olfactory Sensing [CD par.20]	Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing
OELCD	Audio, Visual, or Olfactory Sensing [CD par.20]	Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing
Connectors - GV/LL	Audio, Visual, or Olfactory Sensing [CD par.20]	Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing [264.1058]	Audio, Visual, or Olfactory Sensing
Pressure Relief Devices - GV		Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing
Instrument Systems and Pressure Relief Devices in Liquid Service		Audio, Visual, or Olfactory Sensing	Audio, Visual, or Olfactory Sensing			
Closed Vent Systems			Audio, Visual, or Olfactory Sensing [63.1255(b)(3)]		Audio, Visual, or Olfactory Sensing [264.1060]	Audio, Visual, or Olfactory Sensing [265.1060]
Pressure Relief Devices in Liquid Service				Audio, Visual, or Olfactory Sensing [61.242-8(a)]	Audio, Visual, or Olfactory Sensing [264.1058]	Audio, Visual, or Olfactory Sensing [265.1058]

2.4. Monitoring Frequencies

The following Tables 2-4 and 2-5 detail the monitoring frequencies by equipment type for each unit as described previously and as required for Covered Equipment as defined by the CD. The tables provide monitoring frequencies for equipment using Method 21 and required visual inspections. The Method 21 monitoring frequencies found under the column heading *Consent Decree Plant 27/41* will be enforced starting in May 2010 (no later than nine months after the Date of Lodging) and extend until termination of the CD.

Table 2-4 METHOD 21 PERIODIC MONITORING FREQUENCIES

Equipment	Consent Decree <i>Plant 27/41</i>	HON [63 Subpart H] <i>Plant 27</i>	Pharma [Subpart GGG] <i>Plant 41</i>	Benzene [61 Sub. J - Sub. V by ref.] <i>Plant 40</i>	RCRA [264 Subpart BB] <i>Plants 29</i>	RCRA [265 Subpart BB] <i>Plants 29, 40, 47, 48</i>
Pumps - GC/LL	Monthly [CD P.15(c)] See CD P.17 for Alternate Frequencies	Monthly [63.163]	Quarterly [63.1255(c)(2)] or Monthly [63.1255(c)(4)]	Monthly [61.242-2]	Monthly [264.1052]	Monthly [265.1052]
Agitators - GV/LL	Monthly [CD par.15(c)]	Monthly [63.173]	Quarterly [63.1255(c)(2)]			
Valves - GV/LL	Quarterly [CD par.15(a)] See CD P.17 & 45 for Alternate Frequencies	Tiered Frequency: >=2% Leaking - Monthly <2% Leaking - Quarterly <1% Leaking - Semiannually <0.5% Leaking - Yearly [63.168(e)]	Tiered Frequency: >=2% Leaking - Monthly <2% Leaking - Quarterly <1% Leaking - Semiannually <0.5% Leaking - Yearly <0.25% Leaking - Biennially [63.1255(e)]	Monthly or if a leak is not detected for 2 successive months, it may be monitored the first month of each quarter [61.242-7]	Monthly or if a leak is not detected for 2 successive months, it may be monitored the first month of each quarter [264.1057]	Monthly or if a leak is not detected for 2 successive months, it may be monitored the first month of each quarter [265.1057]
OELCD	Quarterly [CD P.15(d)]					
Connectors - GV/LL	Semi-annually [CD par.15(b)] See CD P.17& 45 for Alternate Frequencies	Tiered Frequency: >=0.5% Leaking - Annually <0.5% Leaking - Biennially [63.174(b)]	Tiered Frequency: >=0.5% Leaking - Annually <0.5% Leaking - 4 Years, Monitor 40% first 2 years and the rest the last 2 years <0.25% Leaking - 8 Years, Monitor 50% first 4 years and the rest the last 4 years [63.1255(b)(4)(iii)]	5 Calendar days after evidence of a potential leak is found or eliminate indications of a leak [61.242-8]	5 Calendar days after evidence of a potential leak is found [264.1058]	5 Calendar days after evidence of a potential leak is found [265.1058]

Equipment	Consent Decree <i>Plant 27/41</i>	HON [63 Subpart H] <i>Plant 27</i>	Pharma [Subpart GGG] <i>Plant 41</i>	Benzene [61 Sub. J - Sub. V by ref.] <i>Plant 40</i>	RCRA [264 Subpart BB] <i>Plants 29</i>	RCRA [265 Subpart BB] <i>Plants 29, 40, 47, 48</i>
Pressure Relief Devices - GV		5 Calendar days after a pressure release and being returned to organic HAP service [63.165(b)]	5 Calendar days after a pressure release and being returned to organic HAP service [63.1255(b)(3)]	5 Calendar days after a pressure release [61.242-4]	5 Calendar days after a pressure release [264.1054]	5 Calendar days after a pressure release [265.1054]
Instrument Systems and Pressure Relief Devices in Liquid Service		5 Calendar days after evidence of a potential leak is found or repaired in 5/15 days [63.169]	5 Calendar days after if evidence of a potential leak is found or repaired in 5/15 days [63.155(b)(3)]			
Closed Vent Systems			Annual [63.1255(b)(4)(ii)]		Annual [264.1033(l)]	
Pressure Relief Devices in Liquid Service				5 Calendar days after evidence of a potential leak is found or eliminate indications of a leak [61.242-8]	5 Calendar days after evidence of a potential leak is found [264.1058]	5 Calendar days after evidence of a potential leak is found [265.1058]

Table 2-5 OTHER MONITORING REQUIREMENTS

Equipment	Consent Decree <i>Plant 27/41</i>	HON [63 Subpart H] <i>Plant 27</i>	Pharma [Subpart GGG] <i>Plant 41</i>	Benzene [61 Sub. J] <i>Plant 40</i>	RCRA [264 Subpart BB] <i>Plants 29</i>	RCRA [265 Subpart BB] <i>Plants 29, 40, 47, 48</i>
Pumps		Weekly Visual Inspections [63.163]	Weekly Visual Inspections [63.1255(c)(2)]	Weekly Visual Inspections [61.242-2]	Weekly Visual Inspections [264.1052(a)(2)]	Weekly Visual Inspections [265.1052(a)(2)]
Agitators - GV/LL		Weekly Visual Inspections [63.173]	Weekly Visual Inspections [63.1255(c)(2)]			
Valves - GV/LL						
OELCD						
Connectors - GV/LL						
Pressure Relief Devices - GV						
Instrument Systems and Pressure Relief Devices in Liquid Service						
Closed Vent Systems						
Pressure Relief Devices in Liquid Service						

2.5. Calculating Percent Leaking Equipment for Monitoring Frequency Requirements

The following formulas are used to calculate leak rate percentages for determining monitoring frequencies as described in the tables above.

2.5.1. Calculation Percent Leaking Equipment under 63 Subpart H (HON)

The following formulas are used to calculate leak rate percentages:

Pumps in Light Liquid Service (63.163(d)(4))

$$\%P_L = ((P_L - P_S) / (P_T - P_S)) \times 100$$

Where:

$\%P_L$ = Percent Leaking Pumps

P_L = Number of Pumps found Leaking by Method 21 Monitoring

P_S = Number of Pumps found Leaking by Method 21 Monitoring within 1 month of Start-up

P_T = Total Number of Pumps in HAP service

If greater than 10% or three pumps leak, calculated on a 6 month rolling average, a quality improvement program that complies with 63.176 of Subpart H must be implemented.

Valves in Gas Vapor Service and Light Liquid Service (63.168(e)(1))

$$\%V_L = (V_L / V_T) \times 100$$

Where:

$\%V_L$ = Percent Leaking Valves

V_L = Number of Valves found Leaking by Method 21 Monitoring

V_T = Total Number of Valves Monitored during the monitoring period, excluding valves monitored in accordance with 63.168(f)(3)

For determining monitoring frequencies the percent leaking valves will be calculated as a rolling average of two consecutive monitoring periods for monthly, quarterly, or semi-annual monitoring programs and as an average of the three highest monitoring periods out of four consecutive monitoring periods for annual monitoring programs.

Connectors in Gas Vapor Service and Light Liquid Service (63.174(h)(3)(i)(2))

$$\%C_L = (C_L / C_T) \times 100$$

Where:

$\%C_L$ = Percent Leaking Connectors

C_L = Number of Connectors found Leaking by Method 21 Monitoring

C_T = Total Number of Connectors Monitored during the monitoring period

2.5.2. Calculation Percent Leaking Equipment under 63 Subpart GGG (Pharma)

The following formulas are used to calculate leak rate percentages:

Pumps in Light Liquid Service (63.1255(c)(4))

$$\%P_L = ((P_L - P_S) / (P_T - P_S)) \times 100$$

Where:

$\%P_L$ = Percent Leaking Pumps

P_L = Number of Pumps found Leaking by Method 21 Monitoring

P_S = Number of Pumps found Leaking by Method 21 Monitoring within 1 month of Start-up

P_T = Total Number of Pumps in HAP service

If greater than 10% or three pumps leak, calculated on a 12 month rolling average, each pump must be monitored monthly.

Valves in Gas Vapor Service and Light Liquid Service (63.1255(e)(6)(ii))

$$\%V_L = (V_L / V_T) \times 100$$

Where: %

V_L = Percent Leaking Valves

V_L = Number of Valves found Leaking by Method 21 Monitoring

V_T = Total Number of Valves Monitored during the monitoring period

For determining monitoring frequencies the percent leaking valves will be calculated as an average of the last two monitoring periods for monthly, quarterly, or semi-annual monitoring programs and as an average of the last three monitoring periods for annual or biennial monitoring programs.

Connectors in Gas Vapor Service and Light Liquid Service (63.1255(b)(4)(iii))

$$\%C_L = (C_L / C_T) \times 100$$

Where:

$\%C_L$ = Percent Leaking Connectors

C_L = Number of Connectors found Leaking by Method 21 Monitoring

C_T = Total Number of Connectors Monitored during the

2.5.3. Calculation for Third Party Audit (CD par. 44.a.)

Third Party Audits will include calculating the Comparative Monitoring Audit Leak Percentage by Equipment in the following equations:

- Percent Leaking Pumps = [(Number of Pumps Found Leaking by Method 21 monitoring) / (Number of Pumps Monitored)] x 100%
- Percent Leaking Valves = [(Number of Valves Found Leaking by Method 21 monitoring) / (Number of Valves Monitored)] x 100%
- Percent Leaking Connectors = [(Number of Connectors Found Leaking by Method 21 monitoring) / (Number of Connectors Monitored)] x 100%

3. Roles and Responsibilities

3.1. The plant functions identified in this section have responsibilities within the facilities LDAR program.

- **Environmental Department:** Currently 4 persons with direct responsibility for administration of the LDAR program and compliance with all of the requirements of the Consent Decree. The Environmental Department consists of the Environmental, Health, Safety, and Security Manager, Environmental Specialist, Environmental Unit Manager, and one Environmental Unit Operator. These roles are responsible for coordinating all efforts with the areas describe below. The Environmental Dept. will maintain contractors to complete the monitoring of equipment and to enter and track the leak information in an on-site database system. All data will be reviewed and reported as required by the program. The department will ensure that any leaks found will be tracked in the leak database and entered into the on-site maintenance work order system (SAP). The department will ensure that repairs are completed as required (or meet the requirements for delay of repair). The department will review all changes made to plant equipment within the MOC program and ensure that the necessary LDAR program changes are completed. The department will oversee and maintain all reporting and third-party audit activities.
- **Maintenance:** The Maintenance Manager, Production Assistant, Reliability Engineer and all mechanics have roles in the LDAR program. The Maintenance Manager oversees all repairs/replacements of LDAR equipment and ensures correct tracking and reporting within the work order system (SAP). The Maintenance Manager will also lead the pump replacement for the SEP. The Production Assistant reviews all work order notification and ensures the correct functional locations are entered for LDAR service equipment. The Production Assistant schedules the first attempt to repair and required within 5 days and any additional repair work within 15 days. The assistant will also schedule equipment replacement as specified in the Consent Decree. Actual equipment repairs or replacements are completed by maintenance mechanics or contractor mechanics.
- **Plant Engineering:** Plant Engineering will track any equipment or production process changes as required by the MOC program. The engineer or project manager will work with the Environmental Department to ensure the proper identification of LDAR equipment and equipment specifications and applicable requirements as required by regulations or the Consent Decree.
- **Plant Operations:** Responsible for maintaining production equipment and immediately generating work order notifications for any leaks found by visual, olfactory or other means of detecting a leak as a part of normal operations. Plant

operations will track any equipment or production process changes as required by the MOC program.

- **Contractors:** Responsible for monitoring equipment using Method 21 and electronic data loggers as specified in the Consent Decree. The contractor will transfer the monitoring data to the database at least weekly. The contractor will also maintain and verify the database system integrity and report functions. The contractor will perform quasi-directed maintenance for each repair attempt.

3.2. **Sufficiency of Personnel:** The personnel involved in the program ensure that all aspects required under the CD are properly addressed. It includes management personnel, operations personnel directly responsible for completion of field tasks, and contract personnel to supplement facility personnel as well as to provide objective third-party reviews of monitoring data and recordkeeping. Additional contractor personnel will be utilized as necessary to ensure a sufficient manpower to properly implement the LDAR requirements of the CD as well as other LDAR requirements that apply to the Vertellus facility.

4. Tracking Program

Any changes involving processes, procedures, or equipment covered by LDAR requirements will be performed in accordance with the Vertellus Management of Change (MOC) Procedure (Document Number PS2MR1000 not include in this document). All MOCs are reviewed by the MOC Committee which has representatives from the following departments: Process Team Leader, Production, EHSS, Technology, Engineering, Maintenance, Process Safety, and Quality.

The MOC program ensures that new pieces of equipment added to the process are incorporated into the LDAR program and equipment taken out of service are removed from the LDAR program. This includes ensuring that the new equipment is added to relevant P&IDs, with associated LDAR identifiers, and that the new equipment is added to the LDAR tracking database and all relevant information is included. Changes being implemented with the ELP include the creation of new piping specifications within the Engineering Guidelines which are included on P&IDs (also color coded). The piping specifications include the requirement that valves must be certified low leak technology and that the documentation must be filed with the Maintenance and Environmental departments. For process changes involving new connectors, best efforts will be used to install connectors that are least likely to leak.

Additionally, a tagging program and database tracking system are being added to the LDAR program as a result of incorporating the requirements of the ELP. The tagging and database tracking system will be completed by May 2010 (no later than nine months after the Date of Lodging).

5. Procedure for Identifying Leaking LDAR Equipment

Monitoring of equipment is accomplished by either sensory detection or physical monitoring of emissions with an analyzer, at frequencies and using leak definitions as detailed in Tables 2-2 through 2-5. Either properly trained Environmental Dept. employees or contractors will complete the monitoring.

5.1. Physical Monitoring with an Analyzer

Monitoring of LDAR equipment is performed with a TVA-1000 PID/FID. The probe inlet is moved to the surface of the source to be tested to determine the concentration (described in 40 CFR Part 60, Appendix A and 4.3.1, Type I, "Leak Definition Based on Concentration.") The concentration determines whether there is a leak by definition. Starting May 2010 (no later than nine months after the Date of Lodging), readings will automatically be logged for each compliance test and will be uploaded into the database on at least a weekly basis. The database will be used for compliance demonstrations. Personnel performing the monitoring have been trained in the use of the equipment and Method 21; however, the specifics of this training have not been included in this document.

5.2. If a Leak is Detected

If a leak is detected, it shall be repaired as soon as practical, but not later than 15 days after it is detected. A first attempt at repair must be made within five days after the leak is detected. Delay of Repair (DOR) of equipment for which leaks have been detected will be allowed if the repair is technically infeasible without a process unit shutdown. Repair of the equipment shall occur before the end of the next process unit shutdown.

5.2.1. Leaking valves in Plants 29 and 40: Monthly monitoring on that valve will continue until a leak is not detected for two successive months using the TVA-1000.

5.2.2. Quasi-directed maintenance as defined in the CD is to be performed on leaking equipment beginning May 2010 (no later than nine months after the Date of Lodging).

5.3. Tracking Leaks

When a leak is detected a work notification is entered into SAP. The work notification must be entered in SAP the same day that the leak is detected. A green "Leak Detected" tag is attached to the equipment leak point with the appropriate identifying information. Currently, the Production Assistant and Environmental Unit Manager monitor the LDAR work notifications on a business day basis. In May 2010, leaks will also be tracked in an electronic database.

6. Procedures for Repairing Leaks

Repair work is performed by the Maintenance Department or if necessary a contractor.

6.1. First Attempt at Repair

The first attempt at repair must be performed within five (5) days of leak detection. First attempts include examining for ability to repair, tightening bolts, tightening packing, replacing bonnet bolts, injecting lubricant into lubricated packing, and simple repair.

6.2. Final Attempt at Repair

The repair must be completed within fifteen (15) days. If the repair is not completed within 15 days, a Delay of Repair letter must be signed and sent by the Process Team Leader to the Environmental Unit Manager stating why equipment could not be shut down for repair. Periodic monitoring at the same frequency as shown in Tables 2-4 and 2-5 must be performed.

6.2.1. Drill-and-Tap Repairs: Except for Existing Valves replaced or repacked as part of the Equipment Replacement and Improvement Program as stated below, for leaking valves (other than control valves), the “drill and tap” repair method shall be attempted at least twice prior to placing the leaking valve on the Delay of Repair list. If the drill and tap repair method cannot be attempted due to a major safety, mechanical, product quality, or environmental issue, the reasons for not attempting drill and tap repairs prior to placing the valve on the DOR list must be documented.

6.2.2. Quasi-Directed Maintenance: Except for Existing Valves and connectors replaced or repacked as part of the Equipment Replacement and Improvement Program, as stated below, monitoring is to be performed within 24 hours of each repair attempt in order to achieve the best repair/lowest emission rate possible.

6.2.3. Plants 27 and 41: For each Existing Valve that has a Screening Value at or above 250 ppm but less than 500 ppm, that will be replaced or repacked within 30 days of detecting the leak (as part of the Equipment Replacement and Improvement Program), the valve does not need to be repaired as described above.

6.2.4. Plants 27 and 41: For each connector that has a Screening Value at or above 250 ppm but less than 500 ppm, that will be replaced within 30 days of detecting the leak (as part of the Equipment Replacement and Improvement Program), the connector does not need to be repaired as described above.

6.2.5. Once repaired, the mechanic is to leave the green “Leak Detected” tag affixed until it is monitored.

6.3. Repair Information

For each leak identified, the following information must be recorded/documented as specified in the CD (para.24).

- Date of all repair attempts
- Repair method used during each attempt
- Date, time, and Screening Values (i.e. TVA-1000 reading) or all repair monitoring

7. Equipment Replacement and Improvement Program

Vertellus will implement a program to replace and/or improve the emissions performance of the valves and connectors in Plant 27 and Plant 41 no later than nine months after the Date of Lodging.

7.1. Installing New Valves

Except when commercially unavailable as supported by appropriate documentation, when a new valve is added to Plant 27 or Plant 41, the new valve must be either a Certified Low-Leaking Valve (CLLV) or be fitted with Certified Low-Leaking Valve Packing Technology (CLLVPT).

7.2. Replacing or Repacking Existing Valves that have Screening Values at or above 250 ppm.

Except when commercially unavailable, any time an Existing Valve that has a Screening Value of 250 ppm or more and less than 500 ppm during a monitoring event, the valve is to be replaced or repacked with a CLLV or CLLVPT. The replacement/repacking must take place no later than 30 days from the date of the monitoring event that triggered the requirement. If a process unit shutdown is required for replacement/repacking, it shall be performed during the first Maintenance Shutdown that follows the monitoring event that triggered the requirement.

For valves at or above 250 ppm that will be replaced or repacked within 30 days of detecting the leak, the valve does not need to be repaired as stated previously. For valves with a Screening Value of 500 ppm or greater, all repair and DOR requirements of any applicable regulation must be complied with until the valve can be replaced with a CLLV or repacked with CLLVPT.

7.3. Replacing or Repacking Existing Valves that have Screening Values between 100 ppm and 250 ppm

7.3.1. Replacement or Repacking during the First Maintenance Shutdown of a Covered Process Unit - Any Existing Valve identified as having a Screening Value between 100 ppm and 250 ppm during any monitoring event between the date of the CD and the last calendar quarter before the First Maintenance Shutdown at Plant 27 or Plant 41 is to be identified on a list. The list is to be prioritized in descending order from worst leaks (top of the list) to least-worst leaks (bottom of list). Any Existing Valve on the list that leaked two (2) or more times is to be placed higher on the list than one the leaked only once.

7.3.2. During the First Maintenance Shutdown at Plant 27 or Plant 41, Vertellus must replace/repack with CLLVs or CLLVPT the lesser of: (i) all Existing Valves on the list, excluding those for which CLLV/CLLVPT is commercially unavailable; or, (ii) the number of Existing Valves resulting from the following equation, solved for V_{TBRR} , rounded to the nearest whole number (fractions above 0.5 are to be rounded up). This does not apply to valves for which CLLV/CLLVPT are commercially unavailable. The valves to be replaced/repacked are to be chosen starting at the top of the list and working towards the bottom.

$$V_{TBRR} = 0.10 * (V_T - V_{DOR} - V_{PRR} - V_{PR})$$

V_{TBRR} : Existing Valves that have leaked between 100 ppm and 250 ppm within Plant 27 or Plant 41 and are to be replaced or repacked at the Maintenance Shutdown for the Plant with either CLLV or CLLVPT.

V_T : Total Existing Valves in the Plant (Plant 27 or Plant 41) at the time of the Maintenance Shutdown.

V_{DOR} : Existing Valve(s) in the Plant (Plant 27 or Plant 41) on the DOR list that are to be replaced/repacked at the time of the Maintenance Shutdown.

V_{PRR} : Existing Valves in the Plant (Plant 27 or Plant 41) that have been previously repacked or replaced with either CLLV or CLLVPT.

V_{PR} : Existing Valves in the Plant (Plant 27 or Plant 41) that are scheduled to be repacked or replaced prior to the Maintenance Shutdown.

7.3.3. The requirements apply to each Maintenance Shutdown at Plant 27 and Plant 41, but shall not exceed one time per year and a total of four times during the course of the Consent Decree. For Maintenance Shutdowns subsequent to the First Maintenance Shutdown, the list is to be generated based on monitoring events occurring between the previous shutdown and the last calendar quarter before the current shutdown.

7.3.4. Any valve eliminated as part of the Valve Elimination Program, as specified in the Consent Decree, may be counted as a credit towards the number of existing valves that must be replaced/repacked (VTBRR). This only applies to valves exclusively in order to reduce possible emissions of hazardous air pollutants (HAPs).

7.4. Connector Replacement and Improvement

Vertellus will replace or improve connectors in Plants 27 and 41 as described in the following table.

Table 7-1 Acceptable Replacement Connectors

Connector Type	Acceptable Replacements/Improvements
Flanged	Replacement or improvement of the gasket
Threaded	Replacement of the connector
Compression	Replacement of the connector
CamLock	Replacement of the gasket
Quick-Connect	Replacement of the gasket (if applicable) or replacement of the connector (if no gasket)
Any Type	Elimination (e.g. through welding, pipe replacement)

7.4.1. When a new connector is installed in any portion of Plant 27 or Plant 41 covered by LDAR, best efforts are to be made to install the connector type least likely to leak for the service and operating conditions.

7.4.2. For each existing connector that within two or more times in a rolling twenty-four (24) month period has a Screening Value of 250 ppm or greater, the connector is to be replaced/improved using the methods described in the table above. The replacement/improvement is to take place no later than 30 days from the date of the monitoring event that triggered the requirement. If a process unit shutdown is required for replacement/improvement, it shall be performed during the first Maintenance Shutdown that follows the monitoring event that triggered the requirement.

7.4.3. For each connector that has a Screening Value at or above 250 ppm that will be replaced or improved within 30 days of detecting the leak, the connector does not need to be repaired as according to the general 5-day for first attempt or 15-day final repair schedule. For connectors with a Screening Value of 500 ppm or greater, all repair and DOR requirements of any applicable regulation must be complied with until the connector can be replaced/improved according to the Equipment Replacement and Improvement Program.

8. Supplemental Environmental Project

The facility is required as part of the Consent Decree (Section VI) to implement a Supplemental Environmental Project (SEP). The SEP requires the replacement or upgrade of 29 specifically listed single-seal pumps over a two-year period. In the first year, no less than 12 of the specified pumps must be replaced or upgraded; the remaining pumps must be replaced or upgraded in the second year.

Upon the completion of the SEP, Vertellus is required to submit a completion report after the SEP has been completed, as described in Paragraph 53 of the Consent Decree.

9. Quality Assurance ("QA")/Quality Control ("QC")

9.1. Quarterly Audits by Vertellus employees

The Environmental Department shall conduct quarterly audits and maintain a log that (i) records the date and time that reviews, verification, and observations as required the CD were undertaken; and (ii) describes the nature and timing of any corrective actions taken. The quarterly audits will include the following:

- Review whether any pieces of equipment that are required to be in the LDAR program are not included.
- Verify that equipment was monitored at the appropriate frequency.
- Verify that proper documentation and sign-offs have been recorded for all equipment placed on the DOR list.
- Ensure that repairs have been performed in the required periods.
- Review monitoring data and equipment counts (e.g., number of pieces of equipment monitored per day) for feasibility and unusual trends.
- Verify that proper calibration recorded and monitoring instrument maintenance information are maintained.
- Verify that other LDAR program records are maintained as required.
- Observe each LDAR monitoring technician in the field to ensure monitoring is being conducted as required.

9.2. Certification by Monitoring Technicians

By no later than nine months after the Date of Lodging, the monitoring technician must certify that the data collected represents the monitoring performed for that day and sign a certification form as detailed in the CD.

9.3. Third Party Audits

A third party with experience in conducting LDAR audits will be retained to conduct annual audits of the LDAR program. Each audit will review compliance with all applicable LDAR regulations. The following activities will be included:

- Calculating comparative monitoring audit leak percentages as detailed in section 2.5.3
- Calculating the historic, average leak percentage from prior periodic monitoring events
- Calculating the comparative monitoring leak ratio

9.4. Corrective Action Plan

A Corrective Action Plan (CAP) will be developed if the results of the third party audit identifies any areas of non-compliance or if the comparative monitoring leak ratio is 3.0 or higher. The CAP will be submitted to EPA as detailed in the CD.